

AN INTERESTING ASSOCIATION OF RARE AQUATIC PLANTS FROM NEW HAMPSHIRE

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New stations for any plant are of special interest to the botanist, particularly when several rarities are found within a given habitat, and more particularly when the habitat is well known yet by-passed by literally thousands of travellers annually. The three authors were returning from a field trip to Maine in the summer of 1970 and stopped at the large pond-like area formed by the overflow of the Taylor River on the west side of the New Hampshire Turnpike at the Hampton-Hampton Falls line in Rockingham County, New Hampshire. As visitors to this area will readily recall, approximately one mile south of the Hampton Tollgate on the south-bound side there is a roadside rest area used by travel-weary drivers for some years. All collections were made from within several hundred meters of this place.

Along this portion of the turnpike the water's edge parallels the roadway at a distance of roughly thirty meters. At the rest area the edge of the water turns abruptly westward at virtually right angles to the road. We were able to collect from both the east and south sides of this corner of the pond both by hand and by using a weighted throw-net to recover specimens where deep mud made wading impractical. Algae and small aquatics were preserved in FAA, and larger vascular plants were pressed on the spot. Representative specimens are being placed in local herbaria, the algae at Boston State College and Boston University; the vascular aquatics at Boston State College and the University of New Hampshire.

Examination of the water along the west edge of the turnpike revealed the presence of an extensive mat of *Hydrodictyon reticulatus* (L.) Lagerheim. The mat ranged from the water's edge outward for three to five meters and extended from the pond corner northward for more than fifty meters. We collected the species from both Hampton and Hampton Falls in as much as this Chlorophycean alga

has not been previously reported from New Hampshire. Upon closer examination of the material in the laboratory we were able to identify another new record for the state in *Lyngbya aestuarii* (Mert.) Liebmann, a Cyanophycean species entangled within the netlike structure of the *Hydrodictyon*.

Hydrodictyon has been reported from Connecticut by Conn & Webster (1908), by Hylander (1928); from Massachusetts by Croasdale (1935) and Auyang (1962); and from Vermont by Flint (1916) and by Joyce (1936). *Lyngbya aestuarii* has been reported from Connecticut by Holden (in Collins, 1905), Setchell (in the *Phycotheca Borealis-Americana*, No. 6), and by Hylander (1928). This species has also been reported extensively from southeastern Massachusetts.

This southeast corner of the pond appeared to collect considerable amounts of surface material drifted or pushed by wind action. At the time we visited the site much of the surface near the shore was covered by a floating blanket of both living plants and debris. *Lemna minor* L. was the most prevalent species, but close examination of the drift revealed the presence of considerable quantities of *Wolffia columbiana* Karst. During the preparation of this paper for publication the authors were advised by Albion R. Hodgdon of the University of New Hampshire that this apparently was only the second collection of this species of *Wolffia* within New Hampshire. The previous report, which we confirmed with the author, was by William D. Countryman of Norwich University, and detailed the finding of both *W. columbiana* Karst and *W. punctata* Grisebach in a small pond alongside Interstate Highway 93 near Manchester, in Hillsborough County. That both collections should be reported from sites close to major highways, both presumably frequented by area botanists, is of interest in itself.

Close examination of the *Lemna*, incidentally, revealed that many of its leaf cells were hosting the tiny Chlorophycean endophyte *Chlorochytrium Lemnae* Cohn, a species of algae previously reported from Rockingham County by

Frank S. Collins (1905). The three genera *Lemna*, *Wolffia*, and *Chlorochytrium* are hereby reported for both Hampton and Hampton Falls.

Material gathered by using the net produced three species of larger vascular aquatics. Common along both the east and south shores was *Elodea Nuttalli* (Planch.) St. John. In material collected from the water along the south shore we found a few specimens of *Potamogeton perfoliatus* L. var. *bupleuroides* (Fern.) Farw. Also common to the material recovered along both shores was *Potamogeton obtusifolius* Mert. & Koch. From examination of specimens in the Herbarium of the New England Botanical Club and the Herbarium of the University of New Hampshire it would appear that this is the most southeasterly collection for this species in New Hampshire.

Potamogeton obtusifolius has been reported from Coos County by both A. S. Pease (1912) and S. B. Krochmal (1950). Dodge and Woolner collected it in Carroll County (1946); A. S. Pease in Grafton County (1937); Krochmal again in Hillsborough County (1946), and at Deerfield in Rockingham County in 1950. The present collection, from a former estuary, seems to be from habitats that more closely resemble several collections of the species from near the ocean in Essex County, Massachusetts. On the surface it would appear that this species tolerates a rather wide range of salinity, but insufficient data exists with the material available to be able to state this as a valid premise.

In retrospect, the location of this site, so close to a major artery over which the authors have individually and collectively travelled for some years points up the temptation to overlook the ground "under our feet" in favor of those other pastures that appear more verdant. It also seems worthwhile to suggest that a more prolonged and intensive investigation of this area might disclose other unusual species. Albion Hodgdon, in a personal communication to the authors, was of the opinion that this area, being of estuarine origin, still contained considerable quantities of salts both in and on the bottom, and we might add, these

might serve to structure, in combination with the everpresent fresh water, an unusual community.

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